

DEPARTMENT OF TRANSPORTATION

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December 7, 2004

Mr. Benjamin Tobler
San Diego Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123-4340

Re: *Total Maximum Daily Loads (TMDLs) for Total Nitrogen and Total Phosphorus for Rainbow Creek (Technical Report dated 10/15/04)*

Dear Mr. Tobler:

We appreciate the opportunity to comment on the Technical TMDL Report for total nitrogen and total phosphorus for Rainbow Creek in the Santa Margarita watershed. The Department strongly supports the efforts to protect the environment and achieve the best water quality possible. However, the Department does have significant concerns about portions of the report. Our main concern is this TMDL would require the construction of treatment controls, not yet developed, so that the basic feasibility is unknown. In addition, since the necessary controls have not been identified, the TMDL cannot show how the benefits justify the cost. Our second major concern is that much of the focus of the TMDL, including responsibility for developing and implementing the monitoring program, is placed on the Department even though the Department's contribution is less than 2% of the tributary drainage area. Furthermore, the Department's contribution is a small percentage of the total nutrient loading.

The historical record of concentrations of nitrate in the creek is presented in Section 2.3 of the Technical Report. Prior to the early 1980s the concentrations were constant at an average of 4.4 mg NO₃/L. Nitrogen and phosphorus loading to Rainbow Creek was not a concern until the 1980's when agricultural practice used in Rainbow Valley resulted in significant increases of nitrate concentrations, average of 90.6 mg/L. The average concentration of nitrate in highway runoff is 1.07 mg/L, based on the extensive monitoring the Department has done of highway runoff. This indicates that highway runoff has not contributed to any substantial change in nitrate in the water quality of the creek. In view of this, we do not understand why this TMDL appears to be directed at Caltrans as the only named source rather than at the major contributors of nutrients in the watershed.

We have the following specific concerns:

1. **Unidentified loading** - Table 4-2 in the report shows the total annual nitrogen load for the watershed to be 3,868 kg N/yr. The total volume of flow in the creek is 58,539 x10⁶ cf /yr. This

is equivalent to an average annual concentration of 2.33 mg/L within the creek. The monitoring data in Appendix B shows average concentrations with the creek to be 9.6 mg/L, 14.5 mg/L and 14.7 mg/L for 2000 monitoring. This means that the sources for between 75% and 85% of the nitrogen load to the creek have not been identified. This discrepancy casts doubt on the load allocation as well as the likelihood that the proposed measures will result in significant improvement to water quality in Rainbow Creek. The annual nitrogen load from all sources should be closer to 24,000 kg N/yr.

2. Lack of control technology - It is premature to issue the TMDL before control technologies are identified. Otherwise, there can be no assurance that the allocations will be attained. The report proposes a numeric target for total phosphorus of 0.1 mg/l to be attained by 2013 for Rainbow Creek. The report proposes a numeric target for total nitrogen of 1 mg/L to be attained by 2013. The TMDL has a schedule of 16 years to meet the load allocations, however the Department is expected to meet the waste load allocations in 8 years. The Department requests 20% waste load reduction every 4 years as is shown for load allocations due to the fact there is currently no BMP technology that will reduce nitrogen and phosphorus concentrations to the proposed levels. In particular, nitrogen is generally in dissolved form and is not amenable to treatment by filtration.

3. Department property within the watershed - The letter provided to Ms. Lisa Brown by Cid Tesoro provided information on District 11 drainage area and maintenance practices. The letter indicated District 11 owns 120.3 acres. This value was used for wasteload allocations however the map in Appendix A shows I-15 right of way as 214 acres and 3% of watershed, greater than the 120 acres used for TMDL load allocations.

4. Concentration of nutrients in Department runoff - The Departments report CTSW-RT-03-065 has the latest monitoring data for Caltrans highway runoff. These numbers are different than the 1997-1998 data used in the WQPT that was used to determine Caltrans loads. The more appropriate total Nitrogen concentration is 3.13 mg/L and total phosphorus concentration is 0.29 mg/L. Using this numbers, the Department's current Nitrogen load to creek is 153 kg (0.6%) and P load is 14 kg (3%). Percentages based on current load in the creek ($14.5 \text{ mg/L} \times 1.657 \times 10^9 \text{ L} = 24,000 \text{ kg N/yr}$ and $0.23 \text{ mg/L} \times 1.657 \times 10^9 \text{ L} = 392 \text{ kg P/yr}$).

5. Inability of proposed BMPs to achieve nitrogen reductions - TMDL proposes uses of sand filters to be used in existing rights-of-ways, medians or interchange loops to provide treatment. Sand filters are not an appropriate BMP for treatment of nitrogen. Sand filters convert TKN into Nitrate, so they provide a reduction in TKN and an increase in nitrate. Table 1 shows the expected concentrations after treatment by a sand filter. Expected effluent concentrations are from the Department's Retrofit Pilot Program Final Report (http://www.dot.ca.gov/hq/env/stormwater/special/newsetup/_pdfs/new_technology/CTSW-RT-01-050.pdf).

Table 1 Predicted Effluent Concentrations from Treatment by Sand Filter

Constituent	Highway Runoff Concentration (mg/L)	Predicted Effluent Concentration	Concentration After Treatment by Sand Filter (mg/L)
TKN	2.06	$0.60x+0.11$	1.35
Nitrate	1.07	$0.93x+0.37$	1.36
Ortho Phosphorus	0.11	$0.62x+0.02$	0.09
Particulate Phosphorus	0.18	0.07	0.07

Vegetative filter strips provide minimal treatment for nitrogen, approximately 30%, and are not statistically significant in reducing phosphorous concentrations; with use of certain vegetation types the concentration of phosphorous may actually increase.

6. Basis for cost calculations - The costs presented in Appendix H uses a Caltrans drainage area of 214 acres rather than the 120 acres used in the TMDL report. The cost suggests the use of sediment basins for treatment at a cost as low as \$700. The Caltrans BMP Retrofit Pilot Program Final Report (http://www.dot.ca.gov/hq/env/stormwater/special/newsetup/pdfs/new_technology/CTSW-RT-01-050.pdf) found that the cost for sediment basins in a retrofit situation range from \$303 to \$1,307 per WQV m³. This would be a cost of \$602,000 to \$2,586,000 to treat the 1,986 m³ of WQV for the 4.1 miles of I-15 in this watershed. Cost for sand filters range from \$748 to \$2,118 per WQV m³. (\$1,486,000 to \$4,206,000 to treat 1,986 m³ of WQV)

7. Disproportionate assignment of allocations and reductions - Why is Caltrans assigned 74% (N) and 58% (P) reductions when “urban areas” with similar or possibly more heavily loaded runoff are assigned only 50% reductions.

8. Discharger identification - Why is Caltrans specifically identified as a source when “urban areas” and “residential areas” which also have discrete discharge points are not identified? If these areas are contributing to water quality problems, the Board certainly can address these areas via the County of San Diego MS4 permit and Phase II permit program. Similarly, the nurseries and other major sources can be identified and assigned specific reductions and allocations.

9. Economic Analysis - The documents states: “The Regional Board has considered the costs of implementing this Basin Plan amendment, and finds these costs to be reasonable relative to the water quality benefits derived from implementing the amendment.” We question this statement since as noted above, a technology has not been identified to meet the required nitrogen removal from roadway runoff (and possibly also from other identified sources such as residential and urban areas).

10. Environmental impact – The resolution states that there will be de minimis environmental effects: “This Basin Plan amendment results in no potential for adverse effect, either individually or cumulatively, on fish and wildlife resources or the habitat upon which they

depend. Any and all effects on the environment are expected to be beneficial.” However, the BMPs that will be implemented will almost certainly have impacts. For example, the only current BMP with the potential to provide adequate nitrogen reductions is infiltration, which must be sited in areas with suitable soil. Infiltration on a large scale will impact the groundwater and may only result in a delay of the nitrogen in migrating to the river. The impacts of the BMPs likely to be implemented should have been addressed in order to help determine their potential benefits in this watershed and the ultimate feasibility of these BMPs.

11. Assignment of primary responsibility for monitoring to the Department – The Department’s facilities constitute only 2% of the watershed yet the TMDL assigns the Department and San Diego County full responsibility for developing and implementing monitoring plan. This is wholly unacceptable. The Department is willing to monitor the runoff from its facilities, however, it is not appropriate for the Department, in conjunction with the County, to have the major responsibility to develop the monitoring plan and implement it for the life of the TMDL. Why have the major sources of pollutants – agriculture, nurseries, urban areas, etc, - not been assigned this responsibility?

Summary - The Department is willing to partner with municipalities or other agencies on a pro rata basis to implement measures that are technically feasible and justifiable economically. The Department owns and maintains approximately 4.1 miles of roadway in the watershed. The total area of this right-of-way is approximately 120 acres, which is less than 2% of the watershed (Total watershed area is 7,085 acres). However, it should be noted that Department facilities within the watershed is not a major source of nutrients contributing to impairment in the creek. Limiting uses of chemicals for agricultural practices within the watershed may be more effective in improvements to the water quality of the creek.

We hope these comments are helpful. If you have any questions, please call me (619) 688-3626.

Sincerely,

JESUS VARGAS
NPDES Program Manager

cc: Keith Jones, Department of Transportation Headquarters, Division of Environmental Analysis